EXTENSION CONFERENCE

NICOLLET HOTEL

Minneapolis, Minnesota

November 12-13, 1946

Central states regional extension conference

REGIONAL EXTENSION CONFERENCE

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The Regional Extension Conference met at 9:15 a.m., Tuesday, November 12, 1946 at the Nicollet Hotel.

WEED CONTROL ACTIVITIES

Montana reports the employment of an extension weed specialist in June, 1946. State Weed laws need some improvement. They have been testing 2-4 D of various brands and have found there is much to be learned about its use. They have had better results with it in 1946 than in 1945. They are using chlorates to control some noxious weeds.

Iowa reports that the Weed Law which classifies 17 weeds as noxious is aimed primarily at the destruction of the primary noxious weeds. The weed law is divided into two parts, namely: primary noxious weeds, and secondary noxious weeds. All of the primary noxious weeds are perennials reproducing both by seeds and underground roots. The legislature, county planning committees, and farmers in general have felt that this group of 8 primary noxious weeds constitutes the greatest menace to future farming in Iowa. Consequently the greatest attention of the legal and educational programs is centered on this group of weeds. The primary noxious group of weeds in Iowa consists of quack grass, perennial sow thistle, Canada thistle, horse nettle, bindweed, perennial peppergrass, leafy spure, and Russian knapweed. Primary noxious weeds cannot be controlled by ordinary good farming practices.

The Iowa secondary noxious weeds consist of annuals, perennials, and one biennial. This group of weeds is much more widespread in Iowa than are the primary noxious weeds. So far as the law is concerned, it requires only that the secondary noxious weeds be kept from going to seed. In the case of the primary noxious weeds, it is required by the Iowa weed law that they be eradicated. The secondary noxious weeds in Iowa consist of smooth dock, sour dock, red sorrel, field mustard, buttonweed, cocklebur, puncture vine, buckhorn, and wild carrot. The general concensus of opinion in Iowa is that these secondary noxious weeds can be controlled by good, intelligent farming practices. This would involve (1) purchasing and sowing only high quality seed, (2) thorough composting of weed infested manure, (3) intelligent crop rotation which is detrimental to the life cycle of the weeds and which eventually results in elimination of the weed and (4) seed cleaning. If farmers only will, they can readily control these weeds by following the above outline.

There is nothing radically wrong with the Iowa Weed Law. It is workable and reasonable. If it were enforced to the letter, Iowa, with some exceptions, would be free of primary and secondary noxious weeds inside of 5 - 7 years. The exceptions to this would be the weeds such as mustard and velvetweed whose seeds retain their vitality in the soil for long periods of time. With thorough cultivation, judicious crop rotations with roguing and additional labor such as mowing, spraying, etc., both established areas of weeds and seedlings could be well under control in 3 - 5 years. The primary difficulty with the Iowa Weed Law, and perhaps that of many other states, is that it is not being enforced. In Iowa, enforcement is up to the individual county Boards of Supervisors. In them rests the authority to appoint a one man commissioners system, or to follow a long outdated, township weed commissioner system. The lack of weed law enforcement if such is the case, must be laid squarely upon the county Board of Supervisors. In the counties where the Boards of Supervisors have gone

ahead and promoted a good weed control program results have been very gratifying. Approximately half of the counties in Iowa are operating under a one man weed commissioner system. There is room for a lot of improvement in all of them. Our weed law needs supplementing in that adequate financing must be secured, and use of specialized weed control (Spraying) equipment, owned by the counties, must be made legally available to farmers of the county.

The wider use of sodium chlorate, atlacide, ammate and now the 2-4-D compounds give good promise to the weed harrassed public. Recent work in Iowa on Sinox, 2-4-D, furnace oil, contact and selective sprays, as well as some new materials not yet reported, bid fair to revolutionize weed control in Iowa not only in isolated patches in fields, ditch banks, fence rows, etc., but also in small grain, in vegetables, in flax, and other cultivated crops. The new weed control materials now available will make control cheaper, more extensive, safer, and more effective than ever before. This is only the beginning. We will soon have specific sprays for specific weeds which on specific weeds will be much more effective than anything we have now on certain specific weeds. Extension educational work needs to be done with County Weed Commissioners, County Supervisory Boards, custom sprayers and county sprayer operators, as well as with farmers in general, to bring them the latest findings of research in regard to smother crops and an ever changing array of chemical weed control materials.

North Dakota believes too much emphasis has been placed on perennial weeds and not enough on annual weeds. They plan to place special emphasis on cultural practices for control. More education is needed because too many farmers look to legislations for control; everyone must practice weed control to make an effective program. 475 acres were treated with atlacide in 1946. They are cooperating with Dr. L. M. Stahler on use of 2-4-D and other new herbicides.

South Dakota is working under a new weed law which became effective July 1, 1945. County meetings were held in each county and the county agent explained the new law. Each county elected weed representatives to act with others to enforce the weed law. 34 counties are now organized. They expect to request state aid from their legislature to assist in hiring the necessary personnel to educate and better enforce the weed law. The lack of chemicals has hampered their program this past year. 2-4-D has been used on weed patches along the highway. Tillage is used to eradicate large fields of creeping Jenny. They have found it possible to control creeping Jenny with chemicals or cultivations thus allowing profitable crops to be grown on badly infested land.

Wisconsin has a good township weed control program. One county has a weed commissioner. They believe seed cleaning is an important factor in weed control. Too much grain is sowed without proper cleaning. They are trying to build more local interest in seed cleaning through their county agents.

George Briggs has built a small frame attachment for the lower screen in the Clipper Mill which assists in clearing small weed seeds from the sieve. Signs are used where chemical weed control demonstrations are held. A small sprayer mounted on a trailer is used for these demonstrations. Meetings are held a later time when visitors can see the effectiveness of the treatment. They use zerk fittings filed for proper size for spray nozzles.

Minnesota program is similar to that in other states. It is cooperative between State Weed Commissioner, Extension Service, Soil Conservation Service, P.M.A. and the Experiment Station.

NEW WEED CHEMICALS

Dr. L. M. Stahler reported on the chemical weed research program in cooperation with Minnesota and the Dakotas. They are testing 2,4-D and find it is not tailor-made for all weeds. It is highly selective between the various plants. It is most effective when applied during or just before perennial weeds bloom. Annual weeds are most readily killed when treated as seedlings. It kills stems and leaves but is not too effective upon the roots. It may also devitalize certain seed in the soil. They do not have enough information regarding devitalization but it has possibilities. Experiments with sugar beet fields are under observation.

2,4-D is hazardous to grain crops, especially corn and flax. It shows some injury to all, but the weed eradication may off-set the loss in case of oats, barley or wheat. The time of application is important to both crop and weeds. It causes later maturity of grains and may result in unfilled heads under certain conditions. It will control cocklebur, mustard, marsh elder and sweet clover and does plenty of damage to bindweed though it may not completely kill the latter.

2,4-D may damage the brace roots of corn and make the stalks brittle, leading to severe damage. More investigation is needed before 2,4-D is generally recommended on crops.

Di-nitro sprays are recommended for weed control in flax. They can be used for control of certain weeds in fence rows, railroad rights of way and highways. 2,4-D controls brush on ditch banks and roadways. It kills only the tops of leafy spurge. Borax is the best chemical for leafy spurge. 2,4-D appears to control Canadian and Sow thistle but there is a difference in the effectiveness of the different formulations. Those containing esters are best on hand to kill weeds.

Rate of application of 1000 pp.m. or one tenth of one percent solution are considered most efficient.

Less water can be used under certain conditions in the application of Sinox. Regular application of 100 gallons per acre might be cut to 80 gallons. Dusting of 2,4-D and di-nitro herbicides has been done by plane but ground dusters give better results.

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WEED RESEARCH AT MINNESOTA STATION IN 1946

The research work in Agronomy has centered around the control of annual weeds. An important problem associated with annuals is the weed seed population of the soil. Nearly all soils contain large numbers of weed seeds that will germinate after their natural dormancy has been broken and when favorable environmental conditions have been provided. As an average of more than 100 composite soil samples taken from well managed farms there have been 770 foxtail, 131 pigweed, 70 wild buckwheat, and 76 wild mustard seeds in a square foot six inches deep.

Two methods of destroying these seeds are possible: (1) to devitalize them and (2) to stimulate germination and then kill the seedlings. Deep burial is sometimes practiced to devitalize weed seeds. It is possible that seeds turned under in the soil may lose their viability. However, numerous investigations into the longevity of weed seeds disclose that many species retain their viability for 25 to even 60 years. In recent studies repoted by Chepil, only 6 out of 58 species had a life span of a year or less and an additional 12 lost their viability in 3 years or less. Such species could be devitalized by burial but the remainder retained their ability to grow over so many years that such a method would be impracticable.

The use of chemicals to devitalize seeds in the soil is another possibility. In trials at University Farm, six nitrogenous compounds were compared: the sodium salt, the ammonium salt, and the ester of 2,4-D, aero cyanamid, ammonium thiocyanate and Sinox. The 2,4-D's were applied at various rates with 20 lbs. per acre the most effective. Cyanamid was used at 4356 lbs. per acre, ammonium thiocyanate at 109 lbs. and 2% Sinox at 436 gals. per acre. Wild mustard was reduced from 98 to 100% by all except the thiocyanate which caused a 71% reduction. Likewise, other broad leaf weeds were reduced from 92 to 100% by all but thiocyanate, a 74% reduction. The 2,4-D's reduced foxtail and barnyard grass from 70 to 86%; the other chemicals had no effect.

Ammonium thiocyanate reduced wild oats 98%, cyanamid 89%, Sinox and the ester 83%, sodium salt of 2,4-D 66%, and the ammonium salt 50%. The duration of toxicity in the soil is not known at present. Whether weed seeds or seedlings were killed is also not known at present. Studies in stimulating the germination of weed seeds included (1) the determination of the natural dormancy for 25 species (2) the effect of various cultural practices in the field on germination and (3) the effect of rotations, cropping, and cultivation on germination.

Results of one year indicate that the weed species tried may be classified into four groups on the basis of natural resting stages. The first group germinates freely as soon as seeds are ripe and continues to germinate the next spring and summer. These species require only proper moisture, temperature, and air. The second group does not germinate freely in the fall but will the following spring. The third group requires about 9 months of resting stage and the fourth group more than a year. A tentative grouping based on a single trial but replicated four times using 100 seeds in each replicate is: group 1 -- wild barley, yellow foxtail, wild radish, Canada fleabane, white cockle, and quack grass. group 2 -- dog-mustard, lambs quarters, wild oats, curled dock, common peppergrass, Frenchweed, marsh cress, Canada thistle and perennial sow thistle. group 3 -- witch grass and rough pigweed. group 4 -- wild mustard, barnyard grass, green foxtail, shepherd's purse, stink grass, Pa. smartweed, wild buckwheat, and ragweed. If these groupings are confirmed by a second trial, cultural practices can be suggested that correspond with the season when germination is greatest.

In the trials of cultural practices in the field, cultivated crops, fallow, hay crops, and post harvest cultivations are included. A determination of the weed seed population in the soil at the beginning of the trial and periodically in the years that follow is used as a measure of the success of each practice in reducing the weed seed content. A combination of rotation and cultivation to reduce weed seeds in the soil comprises alfalfa, alfalfa, corn, and flax for one rotation and clover and timothy, corn, oats, and flax for a second. Cultural practices include hoeing of corn after it is laid by, disking vs. plowing of corn land and disking, disking and plowing, shallow plowing, deep plowing, fall plowing and spring plowing of oats stubble.

The weed work in Minnesota is carried on cooperatively between the Minn. Agr. Exp. Station, the Extension Division of the University, and the State Dept. of Agr. The U.S.D.A. cooperates with the state agencies. Projects now under way which are jointly carried out include three county trials of Canada and perennial sow thistle control by cultural practices and chemical herbicides and a sheep pasturing investigation on a farm badly infested with leafy spurge.

STATE AND FEDERAL WEED SEED CONTROL LAWS

Minnesota has excellent cooperation between departments and trade organizations. The North Central States Weed Conference will meet at DesMoines, Iowa. They have a committee for more uniform seed and weed laws between states.

The Minnesota weed enforcement office works with 2600 units of government such as townships, villages, cities, and counties. Success depends upon a good educational program. Each county has a weed and seed inspector when requested by the state seed commissioner.

Weeds cause the farmers greatest loss in crop production. Control is hard because weeds are transported by nursery stock, hay and straw.

UNIFICATION OF WEED LAWS.

A round table discussion was held and all agreed that uniform laws were valuable and that uniform interpretation of laws between states is important to all.

WEED SPRAYING PROBLEMS

High pressure sprayers were first used but experience has proven low pressure of 40 to 50 on the boom is best for weed control. Improvement of sprayers has been slow because few companies manufacture them. Few low pressure machines are made by the large machinery companies.

The market is limited and the cost is high. The most uniform pressure is maintained by using separate motor rather than from a power take-off.

The type of nozzle is important. The government spray machines will be valuable in demonstrating chemical weed control.

2-4-D chemicals can probably be used successfully with less water than the di-nitro sprays. Turbine dusters have been successful for dusting orchards and beaches.

SOIL CONSERVATION AND WEED CONTROL

North Dakota Soil Conservation service has done some cooperative weed control work with the state high way commission in Bottineau County. Shoulders and ditch banks were smoothed and seeded to grass which eliminates many weeds. Grass and legumes hold down weeds in pastures and range lands.

South Dakota reports 2000 acres of creeping Jenny summer fallowed in 1946 either by contract or by an individual operator. 4 to 12 tillages are required annually to control this weed. Sodium chlorate and 2-4-D were also used on about 700 acres. Borax was applied to 400 acres of leafy spurge. They are also holding down leafy spurge by pasturing with sheep.

Minnesota learned leafy spurge on rough land could not be controlled by cultivation without tilling it on the contour.

LEGUME AND PASTURE

F. V. Burcalow explained that Wisconsin has an excellent grass, legume and pasture program. Nine field days were held last summer with a total attendance of 48,000.

An excellent movie of these meetings was shown at the conference. Proper use of machinery and haying equipment was demonstrated at these meetings. They have two types of pasture (1) Permanent (2) Crop Land. Farmers readily adopted Brome grass and are now using Ladino clover. Renovation of Blue grass and June grass pastures includes lining, fertilizing and re-seeding.

South Dakota reports the alfalfa acreage has decreased west of the Missouri and increased to the east of the river. Only one county has more alfalfa than it had 25 years ago. Range operators are using crested wheat grass for grazing while Brome is used on 200,000 acres largely east of the river.

Sweet clover is used as a soil building crop. It is also used for silage and hay as well as green manure. South Dakota has used brief leaflets of timely information to promote larger acreages of grass and legumes.

Minnesota has a full season pasture program, because this is the cheapest feed for livestock. A pasture contest was conducted. Funds for this project were supplied be seedsmen, fertilizer companies and others. Two winners were chosen by county committees from 45 cooperating counties. A one day program and recognition banquet was held last March at the St. Paul Hotel. This served a spark plug to the program by giving the project added life by increased publicity.

Iowa needs more grass and less other crop acreages which means more acres of grass and legumes and less corn. They have a renovation program and hold several field days at the Albin pasture farm as well as at other places in Iowa. One county plans to hold 2 to 4 pasture demonstrations per township next year.

FLAX PRODUCTION PROGRAM

Dr. F. Gray Butcher gave a short report of the Flax Committee regarding the disposition of their 1945 report, and recommended that as the work of this committee was completed that the committee be discharged. Approved.

DINNER PROGRAM

The group were guests of the Northwest Crop Improvement Association for the evening dinner and program that followed.

The dinner was excellent and Mr. Putnam as toastmaster then introduced Mr. Skuli Rutford, Assistant Director of the Minnesota Extension Service and he showed a large number of very excellent kodachrome slides and discussed his impression of western South American life and agriculture as a result of his trip in that country covering several months. This part of the program was not only educational but very interesting.

Mr. Robert C. Woodworth, Cargill, Inc. then read an excellent paper on "The Purpose of FuturesTrading". This paper was not only educational but very thought provoking. Following Mr. Woodworth's presentation the group spent considerable time discussing his paper, and asking questions regarding "futurestrading". Many of the group stated that they had a much clearer idea of the use and value of "futurestrading" than they had been able to get before.

The following is a copy of his talk:

In assigning me the topic "The Purpose of Futures Trading", Henry has handed me a

man-sized order, for a thorough treatment of the subject involves more talk than you gentlemen should be asked to listen to. Rather than attempt a complete coverage of the subject, I shall try to explain the mechanics of Futures Trading and the importance of Futures Trading in the marketing of our Nation's grain crops.

Trading in commodity futures is the making (and the closing out) of contracts to buy and to sell the commodity specified in the contracts some time in the delivery month which gives the contract its name. As example, the trading in the 1946 Minneapolis December wheat future means the making (and the closing out) of contracts to buy and to sell wheat on some business day during December 1946, under the rules of the Minneapolis Chamber of Commerce. The trading in this future began months in advance of December, but one who has contracted to buy cannot require delivery of the wheat until December 1946, nor can the man who contracted to sell make delivery of the wheat and require payment for it until that month.

The grades of grain which may be delivered in satisfaction of a futures contract are established in advance by the rules of the Exchange. Some grades are tenderable at the contract price; others, at stated premiums over or discounts under it. The grain must be stored in approved elevators which must be bonded and which must be reached by rail. Rules set forth in detail how delivery shall be made on contracts and how and when payment shall be made for the grain delivered.

Trading must be done within the hours designated by the rules of the Exchange and within the limits of the pit or the trading floor. Further, it must be done in a way which will permit any of the members of the Exchange an opportunity to trade at the prevailing price level.

There is a buying side and a selling side to each futures contract. The buying side of an open contract is called the "long" side, and those who enter the market on the buying side are termed "longs". The selling side of an open contract is called the "short" side and those who enter the market on the selling side are referred to as "shorts".

As an illustration of how the trading is done, let me follow through one transaction on the Minneapolis Chamber of Commerce.

We will assume that Minneapolis December wheat is quoted at $2.00 per bushel, and Mr. Smith, Manager of the Smith Milling Company at Austin, Minnesota and Mr. Brown of the Brown Elevator Company, Fargo, North Dakota, decide to enter the market on the buying and selling sides, respectively. Mr. Smith places an order with a commission merchant member of the Minneapolis Chamber of Commerce to make a contract to buy 5,000 bushels of Mpls. Dec. wheat at $2.00 per bushel. Mr. Brown likewise places an order with his commission merchant to make a contract to sell 5,000 bushels at $2.00 per bushel. We will assume that the orders are received by the commission representatives of Messrs. Smith and Brown at the same time; that there are no other buyers or sellers at the moment; and these two commission merchants make the contract. Through his agent, therefore, Mr. Smith has taken the buying side of a 5,000 bushel contract in Mpls. Dec. wheat futures at $2.00 per bushel, while Mr. Brown, in the same manner, has taken the selling side of that contract.

The next point to consider is the way in which futures contracts are closed out. While many contracts are settled by the delivery and receipt of wheat, most are settled, instead, by offset; that is, the man who is on the buying side makes a contract to sell the same quantity in the same future through the same commission merchant. The man who has taken the selling side closes out his futures position by making an offsetting contract to buy in the same future through the same commission merchant.

Again let us use Mr. Smith and Mr. Brown as illustrations. We will assume that, at

the end of two weeks, Mpls. Dec. wheat has gone up to $2.10 per bushel and Mr. Smith decides he will get out of the market. He places an order with his Minneapolis commission representative to sell 5,000 bushels of Mpls, Dec. wheat at $2.10 per bushel. His commission representative executes the order and Mr. Smith's resulting short position cancels his former long position of 5,000 bushels in the Mpls. Dec. wheat future on the records of that commission merchant, so that Mr. Smith is out of the market. While it would be possible to wait until the 5,000 bushels should be delivered to him in December on his original contract and then redeliver that wheat on his contract to sell, the frequent practice is to let the long position offset the short position at once.

Now, about Mr. Brown who took the short side when Mr. Smith took the long side. It was not necessary for Mr. Brown to close out his short position when Mr. Smith closed out his long holding for, at the time the original trades were made, neither Mr. Smith nor Mr. Brown nor their respective commission merchants knew who took the other side of the contract. Mr. Smith and Mr. Brown looked to their respective commission merchants to maintain the rights arising from their contracts and, as soon as the transactions had been cleared, each commission merchants looked to the Clearing House in the same way. In effect, the contracts are pooled through the agency of the Clearing House. Mr. Smith had a share, to the extent of 5,000 bushels on the long side and Mr. Brown had an equal share on the short side. Thus, when either of them, or any other holder of a contract, wished to close out his futures position, it was not necessary to find some one on the other side who also wished to close out an equivalent position. It was only necessary for Mr. Smith's representative to find some one who wished to take the buying side of the contract. Such a person might either be some one who desired to assume a long position or some one who already had a short position in that future and desired to close it out.

So much for the mechanics of making of contracts to buy and to sell, the holding of those contracts, and the closing out of contracts to buy and to sell.

Now let me attempt to illustrate the practical application of the futures markets in the handling of grain and its products.

Futures trading is the life blood of grain marketing. The market price is established by this free and open process of buying and selling. This is the basic price at which all purchases and sales are made, whether over the cash tables where carload quantities of grain are sold on the Exchange floor or whether in the country elevators throughout the territory which utilizes the facilities and advantages of the Minneapolis market.

In addition to this function of price determination, the futures market provides another vital service of marketing. It is the opportunity of obtaining price insurance, which is utilized by dealers, processors, elevators and others. You have heard the term "hedging". Through the futures market it is possible for all who wish to avoid losses which otherwise might be incurred because of the inevitable fluctuations in prices, to hedge purchases or sales of grain.

For example, when a country elevator buys grain from farmers, it immediately hedges its purchases by offsetting contracts in the futures market. As it buys grain, it sells equivalent amounts for future delivery at the same basic price it has paid the farmers. It neither gains nor loses whether the price goes up or down before it can ship its grain to market.

Most hedgers in a given commodity are dealers and processors, although producers do at times use the futures market to fix a price on a commodity which they have grown but which may not be ready for delivery to the market.

As a general thing, 50% of a wheat crop moves to market from the farms during the

first four months of the crop year. During those four months, the flour miller finds it necessary to accumulate those kinds of wheat necessary for the manufacture of the particular product which he mills, and often finds it necessary to own considerably more wheat than that necessary to fill his flour contracts. In other words, during the early months of the crop movement season the miller must carry the market risk on considerable quantities of wheat. Without the facilities of the futures markets, the risk just described would be so great as to preclude the accumulation of sufficient quantities to carry on his business properly. However, with the facilities of the futures markets, the miller can sell for future delivery all his long position wheat, pending the time several months hence when he can make sales of flour, at which time, the contracts for future delivery can be bought back on the open market.

Suppose we go back to Mr. Smith and Mr. Brown and put them into active business.

Mr. Smith, you will recall, operated the Smith Mlg. Co. at Austin, Minn. He has a flour customer who wishes to purchase a lot of flour which will require the equivalent of 5,000 bushels of wheat to manufacture. The price is satisfactory, the date of delivery can be fitted into the mill schedule, and Mr. Smith is agreeable to making the sale, but he does not have the wheat to grind nor can he acquire that day the exact grade, type, and quality of wheat he needs to fill the order. He knows that at some time in the future, and in time to permit him to mill out his order, the type of wheat he needs will be available. He also knows that his flour price is based on the current market price for wheat of the required quality, so he sells his customer and immediately wires his market representative in Minneapolis to make a contract to buy 5,000 bushels of Minneapolis December wheat at $2.00 per bushel, the price on which his flour sale was based. This done, Mr. Smith is "hedged".

Within a matter of ten days or so, Mr. Smith has an opportunity to purchase 5,000 bushels of the grade, type, and quality of wheat which he requires for the milling of the flour to complete his flour contract. The Minneapolis December wheat, however, has advanced from $2.00 a bushel, the price current at the time he made his flour sale, to $2.10. This would mean that the actual wheat which Mr. Smith must acquire would cost him 10¢ per bushel more than he had figured in calculating his flour price, but Mr. Smith had purchased 5,000 bushels of December wheat at $2.00 as a hedge and he is therefore able to pay basis $2.10 for his cash wheat and, at the same time, to sell out his contract for 5,000 bushels of December wheat at $2.10, the gain in his "hedge" purchase offsetting the loss in the cash wheat.

Now let us take a look at the business of Mr. Brown of the Brown Elevator Company, Fargo, North Dakota. Mr. Brown operates a country elevator of about 50,000 bushel capacity. He buys grain from producers in his territory and ships to the Minneapolis market where he is represented by a commission firm which handles the selling of his grain. Mr. Brown's elevator is open for business every day and, limited only by the lack of cars in which to ship grain, or the capacity of his elevator, he is prepared to buy any and all grain which his producer-customers wish to sell.

Farmers are marketing wheat in Mr. Brown's territory and his purchases during the forenoon of a day total 5,000 bushels. The price Mr. Brown is paying for wheat at his elevator is based on the current wheat future price at Minneapolis, which is his logical terminal market. The current future is December, and the price on that particular day is $2.00. Mr. Brown has three empty box cars on his elevator track, which he is loading and which he plans to ship to Minneapolis, but knows that several days will elapse before those cars arrive on the market and can be sold. During that interval the market price may decline and the profit margin Mr. Brown may have had in his original purchase may be converted into a loss. However, Mr. Brown knows the value of hedging, and he telegraphs his commission representative at Minneapolis to make a contract to sell 5,000 bushels of December wheat at $2.00 per bushel. His order is promptly executed and Mr. Brown is hedged.

Some week or ten days later, Mr. Brown's three cars of wheat (containing 5,000 bushels) arrive in Minneapolis and are ready for sale. This day, December wheat is $2.10 per bushel and Mr. Brown's cars are sold on this basis. You will recall that he originally bought the wheat basis $2.00 per bushel and it would seem that he should profit by 10¢ a bushel through the sale basis $2.10. However, Mr. Brown had hedged his purchase at $2.00 per bushel and, as his three cars of wheat are sold, he buys back his 5,000 bushels of December wheat at $2.10 per bushel. The 10¢ profit in the sale of his cash wheat is offset by the 10¢ loss in his futures and Mr. Brown has left, sound and secure, his original margin.

Hedging provides insurance for buyers and sellers which could not be obtained through any other source. No insurance or surety companies provide it. The cost is low, involving only the nominal commissions charged for making the trades in the market.

Hedged grain is regarded by bankers as safe and attractive collateral. So the futures market, by providing this privilege of hedging, has made it possible to borrow at low rates of interest the stupendous sums of money required to buy and finance the grain crops of the Northwest as they move through the channels of marketing and consumption.

Grain markets, as they exist today, were not a sudden or conscious invention of man. They have been evolved out of generations of experience. Their rules, regulations, and practices have been altered from time to time to meet changing conditions. As Exchanges, they are not engaged in marketing. They neither buy nor sell grain, nor do they have any part in establishing prices. The exchanges merely provide a market place and supervision which insures fair and equitable practices--fair alike to their members and to the thousands of non-members who utilize and patronize the market.

When people talk of grain dealers and grain exchanges, they sometimes loosely use the words "speculator" or "gambler". The firm that buys and sells grain never speculates in grain; it hedges grain in order to escape the very risk of speculation. But one of the most simple facts we know is that some one "must" speculate in grain that is harvested within less than four months for use during twelve months. Either the farmer speculates by holding title to it, or the government speculates by taking it at a fixed price or fixed loan basis, or some specialist speculates on a basis of investment. It is not gambling, for gambling creates its own risk for the purpose of the bet, while the risk is inherent in existence of the grain and must be borne by someone from time of production to time of final use. We in the trade believe most strongly that thousands of individual investors in grain futures are a safer medium for forecasting price than would be the necromancy of one or a very few bureaucrats telling farmers and consumers what the price "should be".

In spite of the thousands of individuals and firms required to market grains in the terminal and out through the country stations, and in spite of the tremendous investment in facilities and equipment, plus the millions in cash required to buy, ship, and store the crops, it is significant that grain is marketed at the lowest cost to the producer of any agricultural product.

November 13, 1946

BARLEY SITUATION

Dr. John Parker emphasized the need of more certified malting barley seed and explained the need of a larger malting barley acreage to meet trade requirements. He discussed the varietal surveys and exhibited maps showing barley production in northwest states.

Dr. J. C. Weaver explained his work as a barley geographer and told something of his future plans to assist with the barley program.

FLAX SITUATION

Mr. A. C. Dillman reported on flax in place of Ed. Mitchell who could not attend the meeting. Mr. Dillman is giving a similar talk at the Flax Institute and it will be published in their proceedings, therefore, we refer you to the Flax Institute report for this information.

OAT AND WHEAT VARIETIES

New oat varieties include Bonda, Mindo, Clinton, Benton and Eaton. All are resistant to the Helminthosporium Victoriae. Oats millers are testing oats to learn percentage of groats to hulls also protein content.

Henry wheat is a poor bread wheat and should be eliminated in hard red spring wheat areas. Spinkcota falls in the same class. It lacks milling quality. Redman is a new Canadian wheat which they consider very satisfactory. Rescue is also of Canadian origin. It is highly resistant to sawfly. It has been released in Canada but will not grade higher than No. 3 Northern.

HELMINTHOSPORIUM VICTORIAE

Professor Matt Moore discussed Helminthosporium Victoriae of oats in Minnesota and displayed potted oats to demonstrate damage of this disease to Victoria x Richland oats as compared with resistant varieties. Plants die prematurely, ripen prematurely, thus severely reducing crop returns. Disease is in the soil and on the seed. Losses were very evident at St. Paul, Waseca and Morris stations. Seed treatment with New Improved Ceresan is recommended to reduce losses next year.

Donald Coe of Iowa showed excellent Kodachrome slides of Helminthosporium Victoriae taken in Iowa. 25 million acres of Victoria Richland oats are doomed by this disease which is 90% of Iowa's oat crop. This disease was first observed in 1945 and has built up extremely fast. It intensifies under high temperatures but also builds up under cooler conditions and does not seem to attack other crops. It causes root rots, stems blacken at nodes and heads from diseased plants do not properly fill.

IOWA SEED OAT TREATMENT PAID WELL

Variety	not treated	treated	INCREASE in bushels	% increase
Overland	30	49	19	63
C.I.4192	38	58	20	53
Clinton	88	89	1	1

The following Iowa table demonstrates the change in oat yields since Helminthosporium Victoriae has attached this crop in Iowa.

Variety	1933 - 1945 Average Yield	1945 Ames and Kanawha	Community Trials	1946 A. & K.	1946 C. T.
Clinton	81	106	84	101	80*
Tama	66	74	68	72	64*
Boone	65	86	69	70	59*
Marian	64	86	72	89	76*
Gopher	54	70	56	84	76*
Richland	53	76	59	82	75*

*seed was treated with New Improved Ceresan.

C. I. 3846 is not well segregated but is a Bond x 69 cross and is resistant to Helminthosporium Victoriae. It was not released by the Iowa station but has been sold as Bond X, Bond Cross and Clinton No. 2.

SAWFLY

Montana reports 6 million bushels loss from this insect in 1946. Two and one half million acres were damaged. Montana has 60,000 bushels of Rescue wheat for seed in 1947.

North Dakota reports similar losses from Montana and Canadian borders east to the durum area, and south as far as Jamestown. Some were found near the South Dakota border.

CORN BORER

Corn borers have been found in eastern North and South Dakota. Minnesota corn borer problems are increasing. Weather has not been too favorable for them the past few years. Severe damage appeared in Dodge County this year. The heaviest population is south and west of the Twin Cities.

Wisconsin has a problem with corn borer. They are testing hybrids for resistance and using DDT in some fields for hybrid seed corn.

CORN BORER IN IOWA

1946 Survey Results

All counties infested. East Central Iowa (35 counties) most heavily infested as usual. 19 counties with more than 100 borers per 100 stalks as compared to 5 last year. Heaviest infestation 313 borers per 100 stalks. Probably loss in 1946 about $25,000,000 compared to $6,000,000 in 1945. Loss caused by 2 things - 3% per borer per stalk due to short ears, chaffy corn, poor pollenation or poor filling AND loss due to broken stalks and dropped ears. This loss varies with variety but appears to average 2% to 3% for Iowa.

1946 Control Program

Approximately 50% of corn stalks destroyed by ensiling or clean plowing before May 15 in eastern Iowa. 60 clean plowing demonstrations in eastern Iowa. First annual clean-plowing contest sponsored by radio station WMT at Cedar Rapids. Probably 10,000

acres of corn treated with DDT by plane, ground dusters and sprayers:

50 acres early market corn
500 acres canning corn
9000 acres of hybrid seed corn.

Airplane application this year was not as effective as ground application.

1947 Recommendations.

A. Destroy all corn crop residues before May 15 by ensiling, shredding or plowing.

B. Plant strong-stalked, strong-shanked, adapted varieties.

C. Where possible, attempt to compress corn planting into the middle of the favorable planting season.

D. Use DDT on early planted or late planted high priced corn crops.

THE FOLLOWING COMMITTEE REPORTS WERE APPROVED:

REPORT OF COMMITTEE ON SOILS AND SOIL CONSERVATION.

Your committee on soils and soil conservation offers for your consideration the following:

1. Soil Conservation districts should be considered as one of the agencies to be called upon for cooperation and assistance in a state weed control program.

   a. The Soil Conservation districts should be encouraged to consider the weed problems when preparing their district programs.

   b. They offer a logical organization to cooperate with state, county and township highway departments in the matter of controlling weeds along the highways by backsloping, levelling and seeding grasses and thereby reducing the highway erosion hazards.

   c. The county highway engineers and highway contractors be invited to participate in the development of district program as it relates to highway construction and weed control along highways.

2. The Soil Conservation Districts in their weed control work, should at all times cooperate with and follow the recommendations of the state weed control program.

3. Summer fallow, whether it be for weed control or moisture conservation presents a serious erosion potential. Therefore, its widespread use should be adopted with consideration of the proper use of tillage impliments and practices to provide the best protection possible to the soil.

4. Grasses with legumes should be used - the long time aspects of a weed control program.

5. Recommend the use of adoptable crop rotations that will provide for good land use, maintain organic matter and fertility and control wind and water erosion.

6. Suggest the application of grades and rates of fertilizers as recommended by the state experiment stations and extension service.

REPORT OF AGRONOMY COMMITTEE

1. That in cases where a Crop Improvement Association wishes to advertise seed outside of their respective states they should first get approval of adaptation of varieties from the crop Improvement Association in the states where advertising is to be placed.

2. That the flax seed supply situation be given full consideration at the Flax Institute and every means employed to insure an adequate supply of seed for an increased acreage in 1947.

3. That grade standards for malting barley be interpreted or changed to better define the term "mellow". The Midwest Barley Improvement Association, Northwest Crop Improvement Association, Barley and Malt Institute and Malt Research Institute are requested to contact maltsters, grain trade and grain standards administrators to bring about such improvement of definition interpretation.

4. That Crop Improvement Associations take steps to increase the certified acreage of adapted superior varieties of crops that are now in short supply.

5. That more attention be directed at the control of annual cropland weeds through cultural practices, better rotations, more legumes and grasses and proper fertilization.

6. The committee recommends that the productiveness of our soils be safeguarded by a greater use of grass legume mixtures in crop rotations so as to increase soil organic matter and also as a means of annual weed control.

REPORT OF WEED COMMITTEE

Recognizing that the effectiveness of noxious weed control is largely lost if all possible sources of weed-seed spread are not eliminated, we recommend,

1. That the Extension Agronomists or Weed Specialists and regulatory officials of each state contact the agencies involved to solicit help of such agencies to secure Federal regulations covering inter-state movements be extended to include the interstate movement, including common carriers, of all feed materials, grains, forages, nursery stock, and other materials other than for processing purposes.

2. That the Extension Services and Regulatory agencies of the states represented work closely with state, county, and highway authorities to encourage such construction of state, county and township roads as to make grass seedings practical and facilitate weed control measures.

3. That the authorized agencies of those states maintaining membership in the North Central and the Western States Weed Control Conference continue to work towards securing increased Federal funds allotted to the states to provide sufficient personnel for needed research at experiment stations, and other outlying points, and for expanded Extension activities for weed control.

4. That time be allotted at the 1947 Northwest Crop Improvement Association meeting and Extension Conference for a report by each state on the most outstanding weed control activity of the year.

5. We commend Prof. Dunham and his associates at the University of Minnesota for the excellent fundamental weed research work vital to efficient weed control, and recommend that commercial groups interested in increasing amounts of certain crops the acreage of which is largely dependent upon growers' net income, devote more attention to similar research work, in cooperation with the agricultural colleges represented.

6. That more use be made by Extension Services of demonstrations on cultural practices in selling weed control ideas.

7. We commend the soil conservation Service, the soil conservation Districts and the Production and Marketing Administration, for their splendid cooperation in the control of noxious weeds, and recommend that such cooperation be continued with all interested agencies in weed control.

INSECT AND DISEASE CONTROL

Situation: Experience indicates that most small-grain seed supplies are infects with rot and seedling blight organisms, and that there is a decided increase in the amount of stinking smut in winter wheat, durum, and other cereals in certain areas. Helminthosporium blight has become a serious potential threat to oats in this area.

RECOMMENDATION: In view of the above situation, it seems especially desirable to intensify efforts to get all small grain seed treated before planting with New Improved Ceresan at recommended dosage. Procedures to accomplish this should include:

1. Extensive publicity
2. Definite recommendations at all crops meetings by the various agencies involved.
3. County agent demonstrations with treated and untreated lots of seed.
4. Intensify extension program.
5. Correlate a form of activities of all interested organizations.

In cooperation with DuPont, the Northwest Crop Imp. Assoc. is putting out a poster on seed treatment. We recommend that this be widely distributed throughout the area in elevators, seed stores, etc.

We commend the efforts of the Midwest Barley Improvement Association, the Flax Institute and Northwest Crop Imp. Assoc. in conducting intensive publicity on barley seed treatment.

It is also recommended that needed attention be given to the control of loose smut of wheat and barley using suitable control methods especially the modified hot water treatment in adequately equipped seed treating centers.

The committee recommends continued support of the barberry eradication work as a means of controlling black stem rust of wheat.

The committee calls attention to recent attempts to correlate plant disease reporting through the cooperative efforts of the Upper Mississippi Valley Plant Pathologists Reporting Service. Support for this type of service should be continued and enlarged and we recommend that this program should be included as a part of the regional extension service activities.

SITUATION: The European corn borer is spreading throughout this region and severe damage is now occuring in many areas. Recommendations for control vary from state to state, so no general recommendations will be made here. However, we do suggest that surveys on this pest be continued.

The wheat stem sawfly problem has continued to increase throughout the range of the insects. The problem should be kept before all crops agencies and the various control practices be recognized and promoted in their educational work.

Grasshoppers appear to be increasing in local areas and surveys and control measures should be continued.

We commend the Northwest Crop Improvement Association for clearing the program with the program committee and completing other necessary arrangements such as hotel reservations etc. for this 1946 meeting.

The Conference urges that the Extension Directors in the areas be asked to approve an Extension Conference in cooperation with the Northwest Crop Improvement Association in 1947.

Henry O. Putnam was named general chairman for the 1947 conference. The following were named as members of the committee:

Ralph Mercer, Montana
Dr. F. Gray Butcher, North Dakota
Paul Burson, Minnesota
Leonard Ladd, North Dakota
George Briggs, Wisconsin
E. S. Dyas, Iowa

They are to confer with their state extension workers to plan the 1947 conference program.

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